



# 8x8 HDMI™ Matrix Switcher with IR & 3D Support

## User's Guide

Model no.

PT-MA-HD88-C



Designed in Germany

Made in Taiwan

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# Section 1: Getting Started

## 1. Safety and Notice

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

The **PT-MA-HD88-C 8x8 HDMI™ Matrix Switcher with IR & 3D Support** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the PT-MA-HD88-C should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

## 2. Introduction

The **PT-MA-HD88-C 8x8 HDMI™ Matrix Switcher with IR & 3D Support** provides the most flexible and cost effective solution in the market to route high definition video sources plus multi-channel (up to 7.1-channel) digital audio from any of the four HDMI sources to the remote displays at the same time. Through only one low cost Cat-5/5e/6 LAN cables, not only high quality video and audio can be transmitted to the display sites, but also users can switch among four HDMI sources using the push-in button or remote control. Furthermore, the built-in IR extension function makes users at display site access the DVD player, PS3 or any HDMI supported devices directly!

- Support HDMI Deep Color & full 3D
- HDCP compliant
- Allows any source to be displayed on multiple displays at the same time
- Allows any HDMI display to view any HDMI source at any time
- Supports 7.1 channel digital audio
- Supports default HDMI EDID and learns the EDID of displays
- The matrix master can switch every output channels to any HDMI inputs by push-in button, IR remote control, RS-232 control, and Ethernet control

- Allows controlling local HDMI sources such as DVD and TiVo by attached IR extender from remote receiver to matrix master
- Extends video signal up to 35m (115 feet) over single CAT.X at 1080p and likely longer with better HDMI source device (such as PS3), better grade HDMI display (such as Sony X-series HDTV), and better quality solid CAT6 cable
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- Fast response time – 2~5 seconds for channel switch

### 3. Package Contents

Before you start the installation of the switch, please check the package contents.

— PT-MA-HD88-C	x1
— Matrix Receiver	X8
— Rack-mounting ear set	x1
— IR Remote control*	x1
— IR Blaster*	x1
— IR Receiver	X9
— Power supply unit (+12VDC, 5A)	x1
— Power supply unit (+5VDC, 2A)	X8
— Installation software CD	x1
— User's Guide	x1



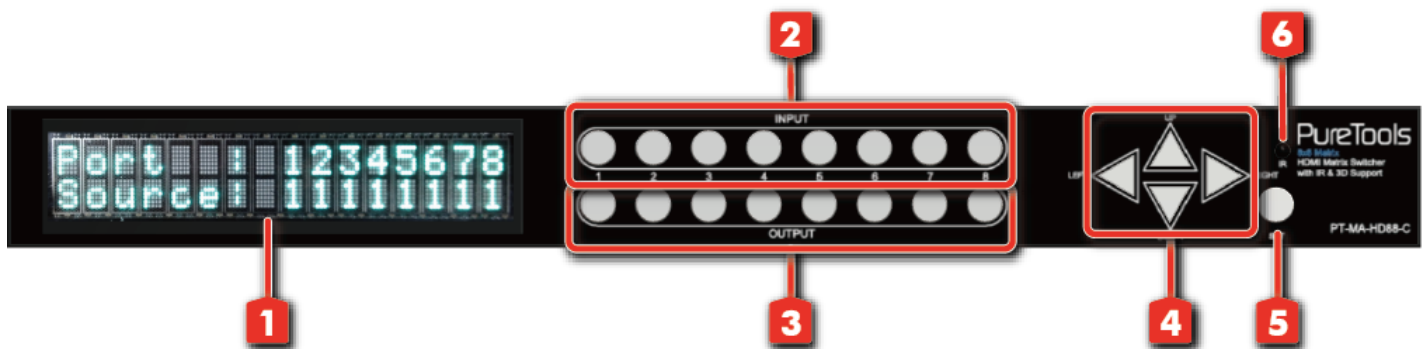
\* Additional IR remote controllers and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.

### 4. Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power supply unit with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the cable. It can cause malfunction.

## 5. Panel Descriptions

### FRONT PANEL — PT-MA-HD88-C, transmitting unit (TX)



#### 1. VFD window

**2. Input Push Button:** Front panel push buttons used to select the number of input source & LED display for input channels

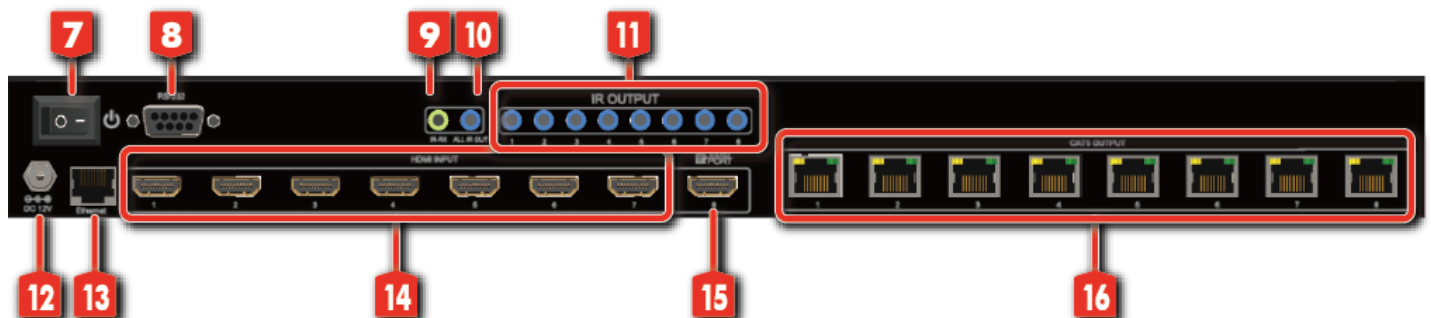
**3. Output Push Button:** Front panel push buttons used to select the number of display channel & LED display for output ports

**4. Push Button:** Select the needed function

**5.SET:** To confirm the function which had been selected.

**6. IR SENSOR:** IR sensor for receiving the IR commands from IR remote

### REAR PANEL — PT-MA-HD88-C, transmitting unit (TX)



**7. Power:** Power control

**8. RS-232:** RS-232 control port

**9. System IR Receiver:** Ext. IR receiver

**10. All IR Output:** 3.5mm IR blaster socket for HDMI source control on all 4 inputs

**11. IR OUTPUT 1-8:** 3.5mm IR blaster socket for individual HDMI source control

**12. +12V DC:** 12V DC power jack

**13. Ethernet:** Ethernet control port

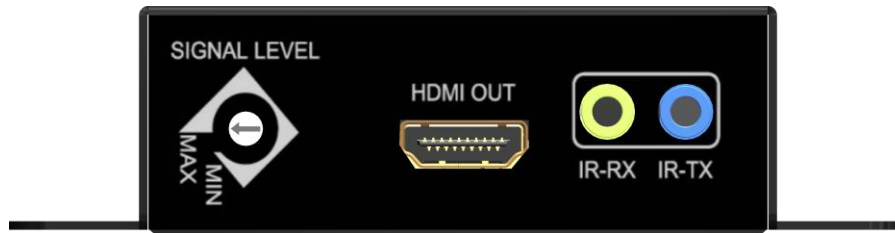
**14. INPUT 1-7:** HDMI inputs

**15. INPUT 8 & EDID Port:** HDMI input and EDID port for learning EDID from display

**16. Output Port 1-8:** RJ-45 outputs for each output channel

## FRONT PANEL — PT-MA-HD88-C, receiving unit (RX)

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**Signal Level:** Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from strongest (0) to weakest (7) for respective transmission length from longest possible range to short distance. Please adjust the signal level from strongest to weakest and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!

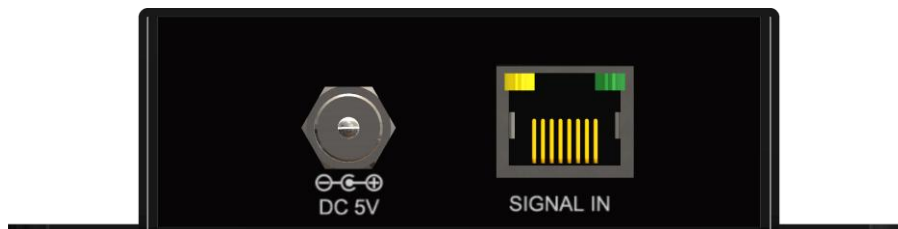
**HDMI OUT:** Connect to HDTV with a HDMI cable

**IR RECEIVER:** Plug in IR receiver

**IR Blaster:** Plug in IR blaster

## REAR PANEL — PT-MA-HD88-C, receiving unit (RX)

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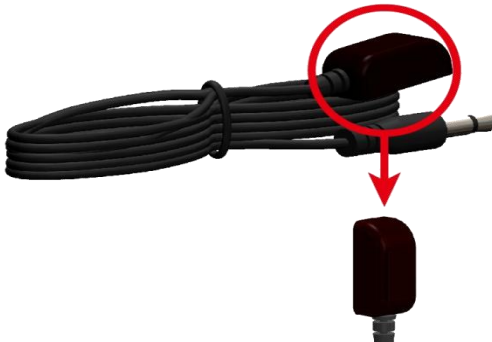
**+5V DC:** Connect to 5V DC power supply.

**HDMI SIGNAL IN:** Plug in a Cat.X cable.

## 6. IR Pass-through

### IR Extenders

IR Blaster



IR Receiver



### IR Sockets

#### PT-MA-HD88-C

**All IR Out:** The default location for IR blaster to transmit all IR command signals received from any of the four remote receivers to all of the HDMI sources.

**IR BLASTER 1-8:** IR blaster connected here can only transmit IR command signals from the remote receivers that are setting at respective input channel from 1 to 8.

**System IR:** Receives IR commands from remote control

#### PT-E-HD10

**IR BLASTER:** IR control on individual display device

**IR RECEIVER:** IR receiver connected here can receive all IR command signals from the IR remote controls of PT-MA-HD88-C and all other HDMI source devices.

### **CAUTION!**

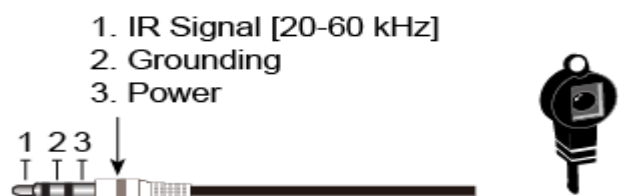
*Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.*

### Definition of IR Earphone Jack

IR Blaster



IR Receiver



*You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.*

## 7. Installation

- Connect all sources to HDMI Inputs on the 8x8 HDMI over CAT.X matrix master PT-MA-HD88-C.
- Connect each CAT.X output port on the PT-MA-HD88-C to respective CAT.X input on the remote receiver PT-E-HD10.
- Connect each HDMI output on receiver to HDMI displays.
- Connect IR blaster to the PT-MA-HD88-C and direct the IR blaster to point towards the built-in IR receiver of the HDMI source devices.
- Connect the +12V 5A DC power supply to the PT-MA-HD88-C and +5V 2A DC power supply to the receivers
- Power on all HDMI sources and displays.
- Dial the 8-level rotary control switch to adjust the HDMI signal level until the picture and sound are clear. It is recommended to dial from weakest to strongest to find the optimal visual experience

## 8. EDID LEARNING

The EDID learning function is only necessary whenever you encounter any display on the HDMI output port that cannot play audio and video properly. Because the HDMI source devices and displays may have various level of capability in playing audio and video, the general principle is that the source device will output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would be probably the safest choice. Nevertheless, the user can force the matrix to learn the EDID of the lowest capable HDMI display among others to make sure all displays are capable to play the HDMI signals normally.

There are **eight embedded default EDID** as below,

- Full-HD(1080p@60)-24bit 2D & 2ch
- Full-HD(1080p@60)-24bit 2D & 7.1ch
- Full-HD(1080p@60)-24bit 3D & 2ch
- Full-HD(1080p@60)-24bit 3D & 7.1ch
- HD(1080i@60)(720p@60)-24bit 2D & 2ch
- HD(1080i@60)(720p@60)-24bit 2D & 7.1ch
- Full-HD(1080p@60)-36bit 2D & 2ch
- Full-HD(1080p@60)-36bit 2D & 7.1ch



## Section 2: Operation approach

### Mode Selection

Pressing UP(↑) or DOWN(↓) button to select among 4 different modes – Save Mapping Mode, Preset Mapping Mode, Default EDID Mode, EDID Learning Mode, and Status Mode



#### 1. Save Mapping Mode

- 1) Pushing “Left (←)” button, to enter the Save Mapping Mode.



- 2) Use the “Right (→)” input push button to get into the selection of the mapping configuration, and use “UP (↑) & DOWN (↓)” (1~8) to choose which set you want to save current input/output mapping



- 3) After you select the desired mapping configuration number, the number will be twinkled. Then, press the SET button, the setting will be saved successfully.
- 4) press LEFT(←) button to go back to pre-layer

#### 2. Preset Mapping Mode

- 1) Pushing “Left (←)” button, and use DOWN (↓) button to enter the Preset Mapping Mode.



- 2) Use the “Right (→)” input push button to get into the selection of the saved mapping configuration, and use “UP (↑) & DOWN (↓)” (1~8) to choose which mapping you want



- 3) After you select the desired mapping configuration number, the number will be twinkled. Then, press the SET button, the device will show the selected mapping.
- 4) press LEFT(←) button to go back to pre-layer

### 3. Default EDID Mode

- 1) Select Default EDID Mode and press RIGHT(→) button to enter this mode



- 2) Press UP(↑) and DOWN(↓) button to select the default EDID mode(1~8)



- 3) Press LEFT(←) button to go back to pre-layer
- 4) Press UP(↑) and DOWN(↓) button to select which input will be applied
- 5) Press SET button to confirm, and VFD will show OK or FAIL after setting
- 6) Or press LEFT(←) button to go back to pre-layer

### 4. EDID Learning Mode (OUTOUT EDID)

- 1) Select EDID Learning Mode and press RIGHT(→) button to enter this mode

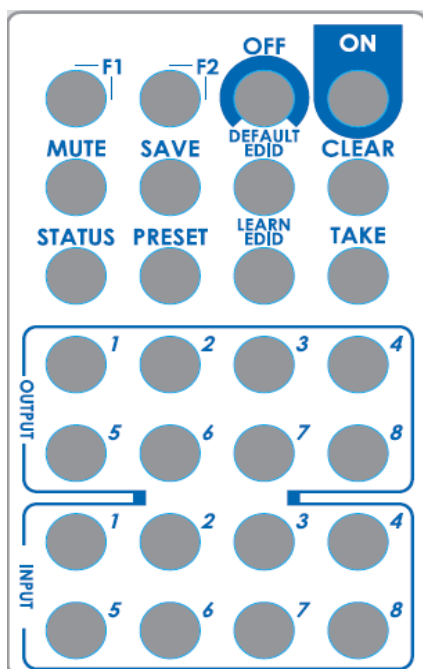


- 2) Press UP(↑) and DOWN(↓) button to select which input will learn the EDID from EDID port



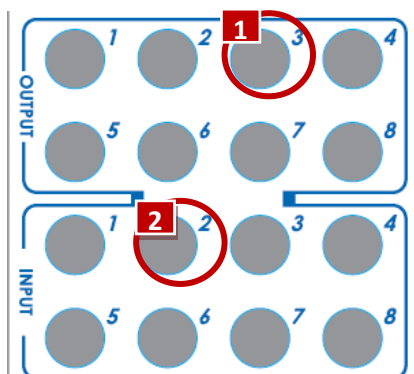
- 3) Press SET button to confirm; or press LEFT(←) button to go back to pre-layer
- 4) If confirmed, VFD will show SUCCEED or FAIL after learning

## Method B: IR Remote Control



### 1. IN/OUT Switch

Operation	Procedure	7-Segment LED
<b>IN/OUT Switch</b>	<b>Output Number (1~8) + Input Number (1~8)</b>	
<b>Ex: Input 2 To Output 3</b>	1. Press output number key "3" to select Output 3	3 -
	2. Press input number key "2" to select Input 2	3 2



### 2. Function Key

Button	Function
<b>OFF</b>	Standby mode
<b>ON</b>	Power on the matrix switcher
<b>MUTE</b>	Turn off output's video and audio
<b>STATUS</b>	Preset output status
<b>SAVE</b>	Save current mapping mode
<b>PRESET</b>	Preset mapping mode
<b>DEFAULT EDID</b>	Begin default EDID selection
<b>LEARN EDID</b>	Begin EDID learning from one output
<b>CLEAR</b>	Clear the previous IR operation procedure
<b>TAKE</b>	Trigger the previous setting
<b>F1</b>	Reserved
<b>F2</b>	Reserved

Operation	Procedure	VFD Window
<b>Mute Output</b>	<b>Mute + A~H(Output 1~8) + Take</b>	
Ex: Mute Output 3	1. Press "MUTE" button	Mute A~H Take OUTPUT: -
	2. Press number key "C" to select Output 3	Mute A~H Take OUTPUT: 3
	3. Press "TAKE" button	Port : 1234 Source: 2202
<b>Output Status</b>	<b>Status + A~H(Output 1~8) + Take</b>	
Ex: Output 4 (Input 2)	1. Press "STATUS" button	Status A~H Take OUTPUT:- IN:-
	2. Press number key "D" to select Output 4	Status A~H Take OUTPUT: 4 IN:-
	3. Press "TAKE" button	Status A~H Take OUTPUT: 4 IN:2
<b>Save Current Mapping</b>	<b>Save + A~H(1-8 storage site) + Take</b>	
Ex: Save current mapping to 5	1. Press "SAVE" button	Save A~H Take Save(1~8): -
	2. Press number key "E" to select the storage site 5	Save A~H Take Save(1~8): 5
	3. Press "TAKE" button	Save A~H Take Save(1~8): 5
<b>Preset Mapping</b>	<b>Preset + A~H(1-8 storage site) + Take</b>	
Ex: Preset saved mapping from 5	1. Press "PRESET" button	Preset A~H Take PRESET(1~8):-
	2. Press number key "E" to select the storage site 5	Preset A~H Take PRESET(1~8): 5
	3. Press "TAKE" button	Preset A~H Take PRESET(1~8): 5
<b>Learn default EDID</b>	<b>Default EDID + A~H (1-8 storage site)+ 1~VIII(input 1~8) + Take</b>	
Ex: Default EDID 2 Input 3	1. Press "DEFAULT EDID" button	DefA~H I ~VIII Take from : - to IN:-
	2. Press number key "B" to select default EDID 2	DefA~H I ~VIII Take from : 2 to IN:-
	3. Press number key "III" to select Input 3	DefA~H I ~VIII Take from : 2 to IN:3
	4. Press "TAKE" button	DefA~H I ~VIII Take from : 2 to IN:3
<b>Learn EDID Port EDID</b>	<b>Learn + D(EDID Port) + I ~VIII (input 1~8) + Take</b>	
Ex: Learn EDID Port Input 3	1. Press "LEARN" button	OUT A~D I ~VIII Take From : 0 to IN:0
	2. Press number key "D" to select EDID Port	OUT A~D I ~VIII Take From : 4 to IN:0
	3. Press number key "III" to select Input 3	OUT A~D I ~VIII Take From : 4 to IN: 3
	4. Press "TAKE" button	OUT A~D I ~VIII Take From : 4 to IN:3

## Method C: Software Control through RS-232 port

### 1. System Requirement

- 1) OS Information: MS WinXP/7
- 2) Baud rates: 9600
- 3) Software size: 3 MB
- 4) Minimum RAM requirement: 256 MB



**1** FW/SW Version Button

**2** COM Port Selection

**3** Connection Status

**4** Connect/Disconnect Button

**5** Power On/Off Button

**6** EDID Button

**7** Firmware Update Button

**8** Network Button

**9** Mapping Button

**10** Default Reset Button


**11** In/Out Switch Button


**12** Mute Output Button

## 2. Step by step for connecting matrix and controller

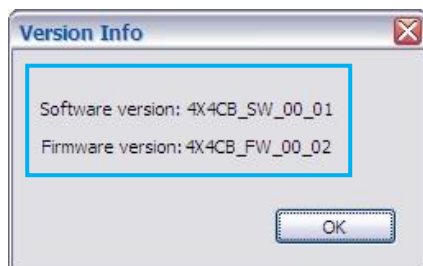

Step1: Use RS-232 cable to connect the RS-232 port on matrix and controller

Step2: Open the software and then choose the correct com port



Step3: Click connection button “

Step4: Make sure the connection status is on connected status “

## 3. FW/SW Version Button

Click “A dialog box titled "Version Info" with a close button (X) in the top right corner. It contains two lines of text: "Software version: 4X4CB\_SW\_00\_01" and "Firmware version: 4X4CB\_FW\_00\_02". Below the text is an "OK" button.

## 4. COM Port Selection

Click “A screenshot of a COM port selection dropdown menu. The label "COM" is on the left, followed by a text box containing "COM 4" and a dropdown arrow icon. Below the text box, a list shows "COM 4" and "COM 3".

## 5. Connection Status

1) Connected Status:





2) Connecting Status:



3) Disconnected Status:




## 6. Connect/Disconnect Button


Click this button “A screenshot of the software interface showing a COM port selection dropdown set to "COM 4" and a green "Connected" button. A blue box highlights the "Connected" button.

## 7. Power On/Off Button

Click this button to power on/off



“

“

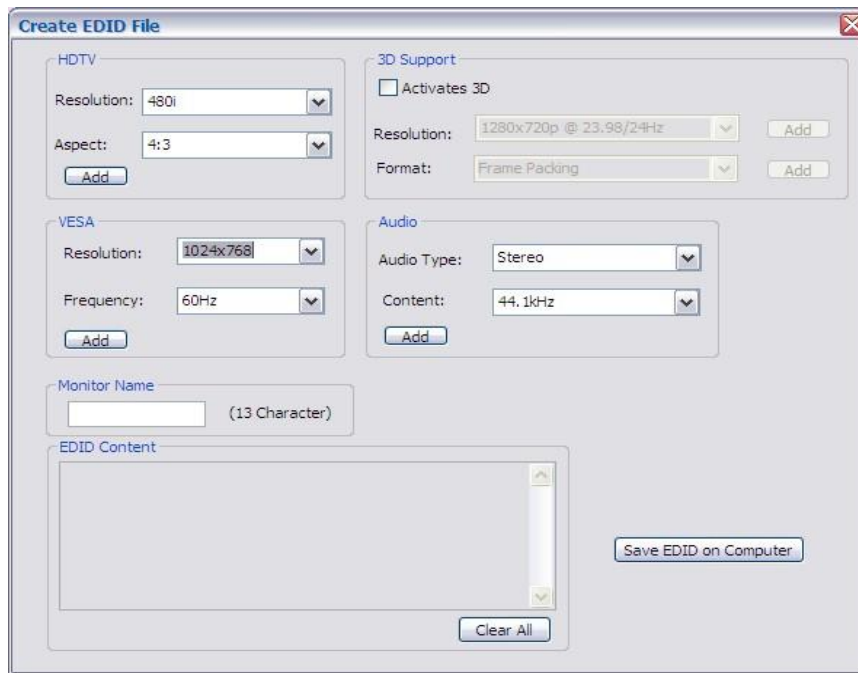
www.purelink.de



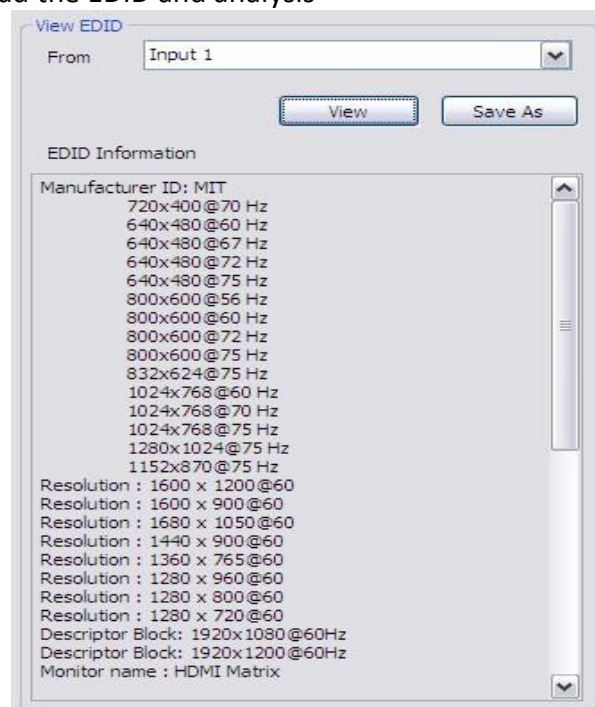
## 8. EDID Button

The screenshot shows the EDID software interface. On the left, there are four main sections: 'Learn EDID from Default' with 'From' set to '1.Full-HD(1080p@60)-24bit 2D & 2ch' and 'To' set to 'Input 1', a 'Learn' button, 'Load EDID File' with 'To' set to 'Input 1' and a 'Load' button, 'Learn EDID from Display' with 'From' set to 'EDID Port' and 'To' set to 'Input 1', and a 'Learn' button. At the bottom left is 'Create EDID File' with a 'Create' button. On the right, the 'View EDID' section has 'From' set to 'Input 1', 'View' and 'Save As' buttons, and a large 'EDID Information' text area.

- 1) Learn EDID from Default
  - a) Select Default EDID(1-8 Default EDID)
  - b) Select Input
  - c) Click “Learn” button to learn default EDID
- 2) Load EDID File to Input
  - a) Select Input
  - b) Click “Load” button to select the EDID file
- 3) Learn EDID From Display
  - a) Select EDID Port
  - b) Select Input
  - c) Click “Learn” button to learn display EDID
- 4) Create EDID File
  - a) Click “Create” button to create EDID file



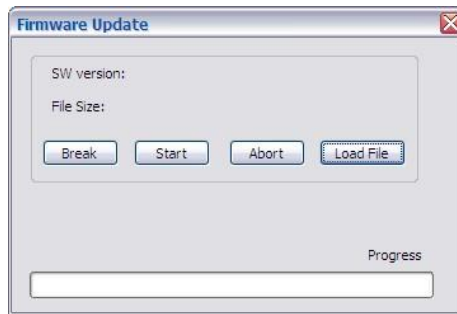
- b) Select the EDID content
  - c) Click "Save EDID on Computer" to save the generated EDID as a file
- 5) View EDID Content
- a) Select Input, or From File
  - b) Click "View" button to read the EDID and analysis



- c) Click "Save As" to save the read EDID as a file on computer

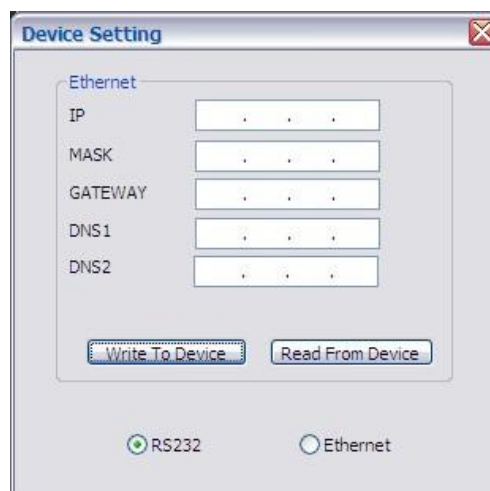


## 9. Firmware Update Button



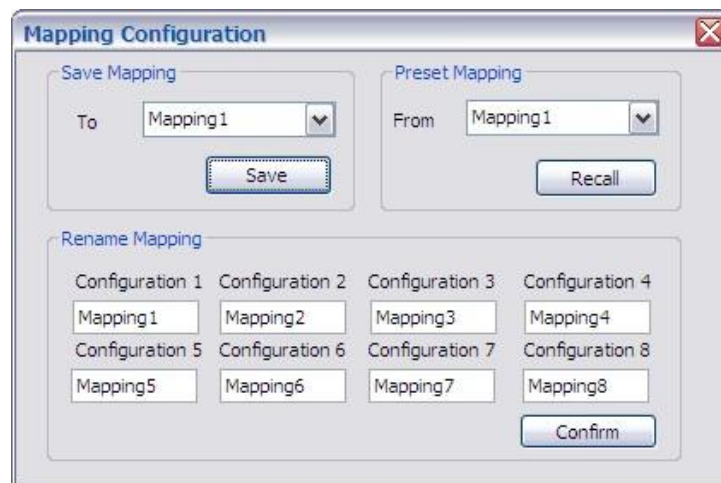
- 1) Click "Load File" to select the firmware file which you want to update
- 2) Click "Break" button
- 3) Quickly remove and reconnect the power input connector
- 4) Click "Start" button to begin the firmware update

## 10. Network Button



- 1) Click "Read From Device" to read the device IP address
- 2) Select "Ethernet" and then will be a pop-up windows
- 3) Key in the device IP address to the pop-up windows
- 4) Close the pop-up windows
- 5) Click the connected button to connect

## 11. Mapping Button



- 1) Save Mapping:
  - a) Select Mapping(1-8)
  - b) Click "Save" button to save current mapping

- 2) Preset Mapping:
  - a) Select Mapping(1-8)
  - b) Click “Recall” button to recall previous mapping which are saved
- 3) Rename Mapping:
  - a) Rename the mapping(Mapping1-Mapping8)
  - b) Click “Confirm” button to confirm the change

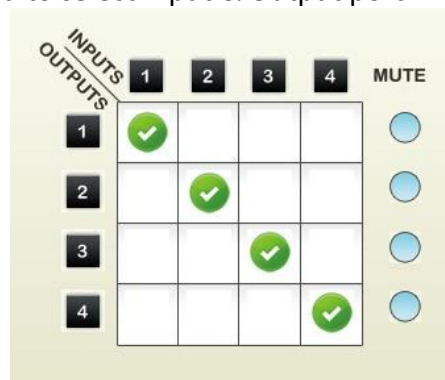
## 12. Default Reset Button

Click this button to do factory default reset

The default reset process will take about 80~90 seconds

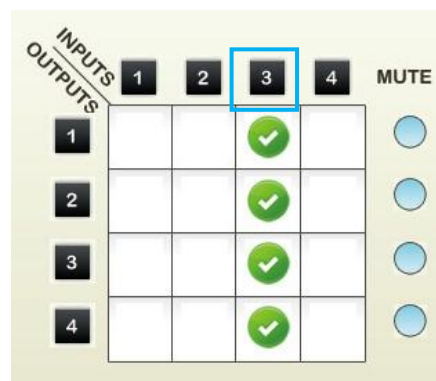
## 13. In/Out Switch Button

Click the button on the checkerboard to select Input & Output port



User can click the input number button to let all outputs select the same input

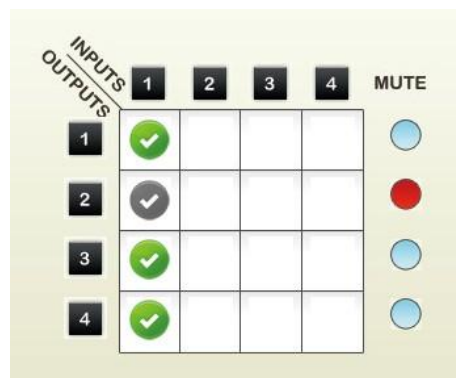
Ex: All outputs select input 3



## 14. Mute Output Button

Click the circle button to turn off output's video and audio

Ex: Mute Output 2



## Section 3: Specifications

	Description	
<b>Units</b>	Transmitting unit of PT-MA-HD88-C	Receiving unit of PT-E-HD10
<b>Unit Description</b>	Transmitter	Receiver
<b>HDMI Compliance</b>	HDMI Deep Color & full 3D	
<b>HDCP Compliance</b>	Yes	
<b>Video Bandwidth</b>	Single-link 225MHz [6.75Gbps]	
<b>Supported Resolutions</b>	480i / 480p / 720p / 1080i / 1080p60 36-bit color	
<b>Audio support</b>	Surround sound (up to 7.1ch) or stereo digital audio	
<b>HDMI over CAT5 transmission range</b>	Full HD (1080p): 35m (115ft) [CAT.X] HD (720p/1080i): 50m (165ft) [CAT.X]	
<b>Equalization</b>	None	8 Level Digital Control
<b>Input TMDS Signal</b>	1.2 Volts (peak-to-peak)	
<b>Input DDC Signal</b>	5 Volts (peak-to-peak, TTL)	
<b>ESD Protection</b>	-Human body model — ±19kV (air-gap discharge) & ±12kV (contact discharge) -Core chipset — ±8kV	
<b>Input</b>	8x HDMI / 1x RS-232 / 1x Ethernet 1x IR socket for IR receiver	1x RJ-45 / 1x IR socket for IR receiver
<b>Output</b>	8x RJ-45 / 9x IR socket for IR blaster	1x HDMI / 1x IR socket for IR blaster
<b>HDMI Input selection</b>	Push-in button / IR remote control / RS-232 control / Ethernet control	IR remote control
<b>HDMI source control</b>	Controllable via IR pass-through from IR receiver at RX to IR blaster at TX	
<b>IR remote control</b>	Electro-optical characteristics: = 25° / Carrier frequency: 20-60kHz	
<b>HDMI connector</b>	Type A [19-pin female]	
<b>RJ-45 connector</b>	WE/SS 8P8C with 2 LED indicators	
<b>RS-232 connector</b>	DE-9 [9-pin D-sub female]	
<b>3.5mm connector</b>	Earphone jack for IR blaster <b>[All IR Out]</b> IR control on all source devices <b>[IR1~IR8]</b> IR control on individual source device Earphone jack for IR receiver <b>[System IR]</b> Receives IR commands from remote control	Earphone jack for IR receiver <b>[IR]</b> Receives IR commands from remote control

### Environmental

<b>Operating Temperature</b>	0~40°C [32~104°F]
<b>Storage Temperature</b>	-20~60°C [-4~140°F]
<b>Relative Humidity</b>	20~90% RH (no condensation)

## Section 4: FAQ

**Q The quality of output video is not good enough, how can I do?**

**A** Please adjust the 8-level equalization on the receiver units. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. It is recommended to switch from 7 to 0 to find the optimal visual experience.

**Q Can I use any kind of LAN cable?**

**A** Please check the NOTICE section for more information about how to pick up a suitable cable.

**Q Can every TV work with the HDMI matrix?**

**A** Basically, the answer is YES. But if your TV can not support 1080p, please refer the EDID LEARNING section to learn EDID from your TV.

**Q What is EDID? Why do I need to learn EDID?**

**A** EDID contains the whole information of the display such as the resolution and audio setting which this display can support. Therefore, based on the EDID information, media player will pick up the most suitable resolution and audio setting to the display. In order to faithfully transmit the EDID information from display to the media player, learning EDID from display to this device is necessary.

**Q What should I do to learn EDID for the matrix?**

**A** Due to the limitation of HDMI, the source device can only output one format of video and audio. In other words, the source device cannot output 720p and 1080p video at the same time, or output stereo and surround sound at the same time. Therefore, you may need to manually setup each HDMI input for desirable audio/video output format. The mechanism of EDID Learning is to pick up the HDMI display with the lowest capability among the ones you would use for this input source. For example, if user would like to play the Input-2 upon output-2, output-3 and output-4, and only output-3 cannot support 1080p [support up to 720p only], please learn the EDID from the display connected to the output-3 at the Input-2 port. Of course, if output-3 would get the HDMI signals from every HDMI input, please learn EDID information from output3 to all four HDMI inputs. For more information about EDID Learning, please refer to EDID LEARNING section.

**Q My TV can support 1080p, but why there is no audio?**

**A** The factory default EDID of this device is 1080p & 2ch audio. However, there would be a problem after you change to use 1080p & 7.1ch if the TV cannot support 7.1ch audio. Please use the default EDID, 1080p & 2ch audio.

**Q When I set an audio amplifier (AV receiver) between TV and the matrix to extract 7.1ch audio, but why there is still no audio?**

**A** Basically, the default EDID of the chosen input can support 7.1ch audio, but the problem is that the EDID of the amplifier still cannot match the default setting. Therefore, the best method is to learn EDID from the amplifier directly. Please refer to EDID LEARNING section and follow the steps to learn the EDID. When learning EDID from the amplifier, user just needs to connect the matrix and amplifier. **Please don't connect HDMI cable between amplifier and TV when the EDID learning is proceeding.**

**Q When I play the same content upon multi-displays, why only the TV equipped with amplifier can have 7.1ch audio, and the others don't have 7.1ch audio even no stereo?**

**A** Due to the limitation of HDMI, the source only can choose one video and one audio format to play, which can be either 1080p and 7.1ch or 1080p and stereo audio. It means when the user sets the matrix at 1080p and 7.1ch, the source will only play the content under this format. Therefore if the TV cannot decode 7.1ch audio, there is definitely no audio.

## Section 5: Notice

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C & VG-870B.
3. The transmission length is largely affected by the type of LAN cables, the type of DVI sources, and the type of DVI display. The testing result shows solid LAN cables (usually in bulk cable 300m/1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission range than stranded STP CAT6 cable. For long extension users, solid LAN cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, one can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the LAN cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of LAN cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.
8. Additional IR remote controls and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.

## Section 6: Performance Guide

Performance rating		Type of CAT5/6 cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★ ★ ★	★ ★ ★ ★	★ ★ ★ ★ ★
	Shielded (STP)	★ ★ ★	★ ★ ★	★ ★ ★ ★
Stranded	Unshielded (UTP)	★	★ ★	★ ★
	Shielded (STP)	★	★	★ ★
Termination		Please use <b>EIA/TIA-568-B</b> termination ( <b>T568B</b> ) at any time		



